The Examiner rejected claims 1-4, 10-14, and 18-20 under 35 U.S.C. §102(b) as being anticipated by Carvers. Specifically, with respect to claims 1, 10, 13, and 18, the Examiner stated that Carvers discloses a controller (CT3 in FIG. 12) that comprises a peak power detector (PD1) that detects peak power and a control signal from the controller (CT3) that controls gain and phase adjustment.

The applicants respectfully disagree with the Examiner's interpretation of Carver. In one embodiment of the controller disclosed by Carver, the controller merely detects a "power" of a signal applied at input 'I' to the controller. Nowhere does Carver indicate that this is a peak power detector, as opposed to the average power detector typically used in such circuits prior to the filing of the pending application. This embodiment of the controller disclosed by Carver corresponds to the control circuit of the feed forward amplifier of the prior art described in FIG. 1 of the pending application, which feed forward amplifier has problems that are resolved by the teachings of claims 1, 10, and 18.

In another embodiment of the controller disclosed by Carver, the controller (CT3) converts the signal input to the controller into its spectral components and includes a bandpass filter that filters out spectral regions corresponding to a desired signal from spectral regions corresponding to distortion components and noise. Power is then summed over the spectral regions corresponding to distortion components and noise. That is, Carver looks for the actual distortion in the error signal and produces a control signal based on the determined distortion. As a result, in this embodiment of Carver, Carver is attempting to reduce the distortion in the error signal itself. By contrast, claims 1, 10, and 18 detect a peak power of an attenuated version of the error signal and produce a control signal based on the detected peak power. This is a much less complex system than Carver. Furthermore, unlike Carver, claims 1, 10, and 18 teach a reduction of the distortion of the amplified error signal, which amplified error signal includes distortion components introduced to the error signal when amplified by the error amplifier.

Therefore, Carver does not teach the limitations of claims 1, 10, and 18 of detecting a peak power of the received portion of the error signal and producing a control signal based on the detected peak power. Accordingly, the applicants respectfully request that claims 1, 10, and 18 may now be passed to allowance.

Since claims 3, 4, and 7-9 depend upon allowable claim 1, claims 11-12 depend upon allowable claim 10, and claims 19-20 depend upon allowable claim 18, the applicants respectfully request that claims 3, 4, 7-9, 11-12, and 19-20 may now be passed to allowance.

With respect to the anticipation of claim 13 by Carver, claim 13 includes limitations of sampling an error signal to produce an attenuated error signal, sampling an amplified error signal to produce an attenuated amplified error signal, conveying the attenuated error signal and the attenuated amplified error signal to a control circuit that produces an error distortion signal based on the attenuated error signal and the attenuated amplified error signal and further produces a control signal based on a quantified version of the error distortion signal. These limitations are not taught by Carver. The first controller (CT3, FIG. 12) of Carver merely receives an error signal and determines a control signal based on the error signal. The second controller (CT4, FIG. 12) taught by Carver receives an error corrected output signal and determines a control signal based on the error corrected output signal. Nowhere does Carver teach conveying an attenuated amplified error signal to a control circuit, let alone an attenuated error signal and an attenuated amplified error signal to a same control circuit, which control circuit produces an error distortion signal based on both the attenuated error signal and the attenuated amplified error signal and further produces a control signal based on a quantified version of the error distortion signal.

The Examiner further rejected claim 13 under 35 U.S.C. §102(e) as being anticipated by Yoo. However, nowhere does Yoo teach the limitations of claim 13 of conveying an attenuated amplified error signal to a control circuit. As a result, Yoo cannot teach the further limitations of claim 13 of producing a control signal that is based on a quantified version of an error distortion signal that is, in turn, produced based on both the attenuated error signal and the attenuated amplified error signal. Furthermore, the control signals generated by the controller (23) of Yoo are used to adjust the error signal of a feed forward correction circuit. By contrast, the control signal taught by claim 13 is used to adjust an input signal applied to the main signal path.

Therefore, neither Carver not Y o, individually or in combination, teach the limitations of claim 13 of a feed forward correction circuit that samples an amplified error signal to produce an attenuated amplified error signal and conveys an attenuated error signal and the attenuated amplified error signal to a control circuit, which control circuit produces an error distortion signal based on the attenuated error signal and the attenuated amplified error signal, wherein the error distortion signal comprises a distortion component of the attenuated amplified error signal, quantifies the error distortion signal to produce a quantified error distortion signal, produces a control signal based the quantified error distortion signal, and conveys the control signal to the main signal path, and wherein, based on the control signal, the main signal path adjusts an amplitude and a phase of the input signal in order to control an energy of a peak power of the error signal and reduce the distortion component of the amplified error signal. Accordingly, the applicants respectfully request that claim 13 may now be passed to allowance.

Since claims 14-17 depend upon allowable claim 13, the applicants respectfully request that claims 14-17 may now be passed to allowance.

The Examiner rejected claims 5, 21, and 23 under 35 U.S.C. §102(e) as being anticipated by Yoo. As discussed above with respect to claim 13, nowhere does Yoo teach the limitations of claims 5 and 21 of conveying a portion, or an attenuated version, of an amplified error signal to a control circuit, producing a control signal that is based on a quantified version of an error distortion signal that is, in turn, produced based on both a received portion of an error signal and received portion of the amplified error signal, wherein the control signal is capable of adjusting an input signal applied to the main signal path. Also, as discussed above with respect to claim 13, nowhere does Yoo teach the limitations of claim 23 of amplifying an error signal to produce an amplified error signal and producing a control signal based on a distortion component of the amplified error signal, which control signal is capable of controlling an adjustment of an amplitude and a phase of an input signal. Accordingly, the applicants respectfully request that claims 5, 21, and 23 may now be passed to allowance.

Since claim 6 depends upon all wable claim 5, claim 22 depends upon allowable claim 21, and claims 24-25 depend upon allowable claim 23, the applicants respectfully request that claims 6, 22, and 24-25 may now be passed to allowance.

Claim 17 was rejected under 35 U.S.C. §112 as lacking antecedent basis for the phrase "the summation junction." The applicants have amended claim 17 to provide proper antecedent support.

As the applicants have overcome all substantive rejections and objections given by the Examiner and have complied with all requests properly presented by the Examiner, the applicants contend that this Amendment, with the above discussion, overcomes the Examiner's objections to and rejections of the pending claims. Therefore, the applicants respectfully solicit allowance of the application. If the Examiner is of the opinion that any issues regarding the status of the claims remain after this response, the Examiner is invited to contact the undersigned representative to expedite resolution of the matter.

Respectfully submitted,
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Version with Markings to Show Changes Made

1. (Twice Amended) In a feed forward amplifier that receives an input signal and amplifies the input signal to produce an amplified signal, wherein the feed forward amplifier determines an error signal based on the input signal and the amplified signal, wherein the feed forward amplifier amplifies the error signal to produce an amplified error signal, and wherein the amplified error signal comprises an error component and an error signal distortion component, an apparatus for correcting distortion in the amplified error signal comprising:

a control circuit that receives [a portion] an attenuated version of the error signal, detects a peak power of the ~~received [portion of the]~~ attenuated version of the error signal, and produces a control signal based on the detected peak power, wherein the control signal is capable of controlling an adjustment of an amplitude of the input signal and a phase of the input signal, and, by controlling an adjustment of the input signal, controlling the error signal distortion component.

17. (Twice Amended) The feed forward amplifier of claim [13] 15, further comprising a delay circuit interposed between the gain and phase adjuster and the summation junction that introduces a timing delay into the amplitude and phase adjusted portion of the error signal.